WASHINGTON STATE UNIVERSITY

CAHNRS Office of Research
COLLEGE OF AGRICULTURAL, HUMAN, AND NATURAL RESOURCE SCIENCES

16 July 2019

Dear Whitman County Commissioners and Planning Commission Members:

I am addressing you today to confirm Washington State University's continued concerns regarding the potential impact of volatile compound emissions from cannabis plants on the surrounding community in Whitman County.

Earlier this year we presented you with a letter signed by the Dean of the College of Agricultural, Human and Natural Resource Sciences (CAHNRS) stating such concerns and outlining a request for a moratorium on any new marijuana related production activities within the county until research is able to be conducted to determine the extent to which such a potential impact may be realized. Dean Wright appointed me to be the CAHNRS point person and to represent the University in this important area. We request that you will extend that moratorium for an additional 6 months as research is now underway that will take several months to conduct and analyze but that should provide important data needed to make rational and reasonable regulations and rules regarding cannabis growth in Whitman County.

About one month after I submitted to the County Commissioners the letter from Dean Wright, I presented to you a relatively large body of literature, not just one paper, but over 15 scientific papers (among many others that we found) that demonstrated that volatile and other air-borne compounds that mammals (including cows, sheep, goats, and humans) breathe in can and do end up in milk. This is an as yet uninvestigated concern in human health, which should be seriously investigated as cannabis use continues to increase in homes with nursing mothers and small children present. That statement is not meant to be alarmist, rather to point out that no research has been conducted in that area, and thus the uptake, metabolism and transmission of volatile compounds through milk is a potential concern. Until research is performed to demonstrate otherwise, it is wise to cautious and conservative in this area.

This question is still a significant concern to WSU's Knott's Dairy. Multiple papers demonstrated that what cows breathe in, ends up in the milk. Several questions result from that conclusion, such as:

What concentration in the air for any particular volatile compound presents a level that is high enough to adversely affect milk and downstream product quality?

Which compounds, if any, from cannabis plants could or do adversely affect milk quality or the downstream products derived therefrom (such as Cougar Gold cheese)?

Does a short term exposure, over a few hours or a day or two, have a negative impact on milk or downstream product quality?

Etc.

To put this into a broader perspective, the wine industry in Washington State is very concerned about the wildfires that are now a common occurrence. "Smoke taint" as it is called, occurs because grapes absorb smoke-derived volatile compounds that cannot be washed off. These volatile compounds pass through the berry skin and are converted into glycosides that have no obvious impact on fresh grape flavor. But they ruin the flavor of the wine – after it is fermented.

PO Box 646240, Pullman, WA 99164-6240
509-335-4563 | Fax: 509-335-6751 | agresearch@wsu.edu | http://cahnrs.wsu.edu/research/

These smoke taint-related compounds can't be detected until fermentation has occurred. This smoke taint can ruin an entire vintage. It can be economically devastating to a winery. I hope you see the obvious parallel here.

WSU is concerned about a similar process occurring with Cougar Gold cheese. Until we are able to evaluate the potential alteration of milk quality by volatile compounds in the air, volatiles produced at high levels that could potentially occur if cannabis plants are nearby, we must move forward with the assumption that new volatiles in the area could be bad for our milk and therefore our Cougar Gold cheese.

It is important to correct a misconception presented at a previous meeting. Just because a compound is present in nature does not make it safe. The term GRAS (generally regarded as safe) only applies to a few hundred compounds in a federal database, compounds that still had to have some safety data available for them, including a long use history, and they had to be (still do) officially registered as such with the FDA. That term, GRAS, only applies to compounds added to food – things that you eat. It has nothing to do with things that you breathe in. None of the major volatile compounds in cannabis are in the GRAS database. Therefore, they are not GRAS, not generally regarded as safe. There is no registry of safe volatile compounds. In general, the opposite is viewed as the case – the lower the better for anything volatile. Just think of VOC content in paint for your bedroom.

Just this past year, elementary schools in Oregon were forced to install carbon air filters on their air handling systems and not allow their students to go outside for recess anymore, or open any of the building's windows, for several weeks when the neighboring hemp field was in bloom (it was right across the fence from the playground), because numerous children were having headaches and nausea and were being sent to the doctor. You can easily find the news stories about this online. Just because it is natural, does not make it safe at high level.

With that all in mind, we would like to make a few suggestions and provide some more information regarding potential regulations, at least until more data is available regarding actual safety (or not) of volatile compound emitted by cannabis plants.

1. The county should not allow outside grow of Marijuana plants (or high-odor hemp cultivars) in areas where the odor could be a public nuisance. This need not be, but could be retroactively applied.

Such a regulation/rule would cut down or eliminate future complaints and significantly reduce inspections needed to be performed by the county.

Such a regulation/rule would protect the livestock/products (milk and meat) around the dairy/beef center on Country Club Rd.

Such a regulation/rule would protect the quality of life of the citizens of Whitman County, particularly those who live in the country, in cluster housing, or on the edge of town in any of the communities in the county.

In light of this principle, WSU will not allow marijuana or hemp growth on any of its land surrounding the dairy/beef center, and is changing its farming lease language to reflect this stance. As hemp production becomes more and more attractive to local farmers, this is a proactive approach that we believe we need to take. There are numerous locations throughout the county where cannabis plants could be grown, even at very large scale, and not present an impact on others. Those locations should be sought out as the place for outdoor cultivation, particularly for hemp, which we believe could be grown at a much larger scale than outdoor marijuana would ever be grown in Whitman County. We have stated this before at other meetings.

2. To follow up on point number 1 above, setbacks for outdoor grow operations must be implemented to protect the quality of life of all Whitman County residents and to prevent odor complaints.

At the present time, however, there are no actual data (one way or the other) to suggest what those setback distances should be. As a result, WSU scientists have initiated research to help determine what such setbacks should be in eastern Washington State. Those scientists are conducting air sampling experiments this year at outdoor grow operations where cannabis plants are being grown at large scale, in order to obtain data to support setback distances that might be proposed. In one experiment, there is a series of 40 acres of connected fields of hemp being grown for CBD production. Those CBD hemp plants will have volatile compound emission profiles that are similar to what can be expected from outdoor marijuana grow operations or from future large-scale hemp production. We hope to measure emissions from an additional outdoor grow operation as well, and are in conversations along those lines right now.

Such emissions data are required in order for us to make reasonable suggestions about setback distances, suggestions that take into consideration air properties in our environment in eastern Washington (humidity level, presence and concentration of other volatiles from surrounding agriculture, wind speed and direction, topography, etc.).

Until such data are generated to provide data-driven conclusions for setback distances, conservative but reasonable estimates for setbacks should be used. We propose that these should be between 1 and 3 miles, depending on prevailing wind and topography relative to housing and community locations. No data exist at present to suggest what those distances should actually be, but a "smell test" from driving along airport road at different times of the day, different days of the year, would suggest to you that at least 1 mile should be required, but further than 3 miles is likely not needed. Again, research is being conducted to evaluate emitted compound levels as a function of distance, wind direction, topography, etc. Once those data are obtained and analyzed, which probably will be done around October or November (plan on the latter), we can provide more solid recommendations regarding setback distances.

3. State of the art odor eliminating air filters (carbon, charcoal, biochar or similar) should be required on all greenhouse/indoor grow facilities in Whitman County and must be able to eliminate odor emissions from said growth facilities. Such filters: 1) do exist currently, 2) are commercially available, 3) are being used in areas such as British Columbia and Spokane County, and 4) are effective particularly with air-conditioned facilities used for indoor growth. The installation of such filters by Dewey Scientific have eliminated WSU's concerns regarding Dewey Scientific's indoor grow plans. We have also discussed with them additional experiments to test for any emissions from their facility, which we view as a very positive step.

4. Whitman County should also consider implementing setbacks for hemp fields for high-odor hemp varieties for the same odor reasons. Just because hemp is an official agricultural product now, due to changes implemented in the 2018 Farm Bill, does not mean that you cannot regulate it at some level if you wish to. At WSU, we believe that you should do so. Data from the WSU experiments this year should help determine what those setbacks should be.

I hope that these comments make it clear to you that WSU is not a passive observer in this important matter for our county. On the contrary, we believe that reasonable regulations can be implemented that will allow for legal activities to take place in the county that do not negatively impact the rest of the county's citizens. Those regulations should not be put together in a rushed, haphazard manner, but should be based on legitimate scientific knowledge and sound principles.

As I have stated before, if you have specific questions that you believe WSU employees can help answer that will facilitate your efforts, please feel free to contact me or the relevant person at the University.

Sincerely,

David R. Gang

Assistant Director of CAHNRS Office of Research
College of Agricultural, Human and Natural Resource Sciences
Professor and Fellow, Institute of Biological Chemistry
Director, Tissue Imaging and Proteomics Laboratory
Washington State University
PO Box 646340
Pullman, WA 99164-6340

Tel. 509-335-0550
Fax 509-335-7643
gangd@wsu.edu